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Paralysis, Cerebral, Bulbar, and Spinal. H. C. BASTIAN. London, 1886, pp. 671.

Paralysis is the most pathological of nervous diseases, and the author even goes so far as to state dogmatically that "almost if not quite all paralyses are invariably caused by definite morbid conditions, appreciable by the naked eye or by the microscope, or by both," although this would hardly hold of paralyses of sense nor of functional paralysis of motion, to say the least, both of which are treated in this book. The writer can and does confine himself largely to a basis of nerval and morbid anatomy, but the cuts, which are quite numerous, are mostly old and familiar. The regional diagnosis, to which much space is devoted, is good, but on the whole is written from the standpoint of the physician rather than of the scientific physiologist. The strictly pathological diagnosis is treated best of all, and the many convenient tables constitute probably the chief value of the book. The chapter on disorders of intellectual expression by speech and writing covers but thirty pages, but contains a valuable table for the examination of aphasic and amnesic patients. The chapters on spinal paralyses, in which such remarkable advances have been recently made, are brief, but quite adequate to the needs of the practitioner, whose wants are throughout kept mainly in view. The book is a vast and thoroughly well ordered collection of material, and is, on the whole, even more valuable than the author's previous work on Brain Physiology.

Remarks on Evolution and Dissolution of the Nervous System. J. HUGHLINGS-JACKSON. *Journal of Mental Science*, April, 1887.

In this valuable article the well known views of the author are summarized and widened. In severe epilepsy crude activities in all parts of the body, and at once, are produced, such a discharging lesion beginning in the latest and highest level of evolution. The post-paroxysmal state is dissolutive, which may reach almost total dementia, which is persisting coma, and recovery from which is re-evolution. There are high, low, and mid-level fits, representing different evolutionary levels. Laryngismus stridulus, *e. g.*, is a low-level, bulbar fit. Even a small and local physiological fulminate, if sudden and rapid enough, may set up discharges in healthy nervous tissue associated collaterally downward, and end in severe convulsion. Among the different insanities, melancholia (posterior lobes?) and general paralysis (anterior lobes?) signify different local dissolutions of the highest centres, as surely as brachiooplegia or cruroplegia signify dissolution of middle, or ophthalmoplegia, of the lowest motor centres. In post-epileptic insanity, mania is the outcome of activities on the levels of evolution remaining, and the union of high special action with great defects of consciousness in some of these cases is due to deep dissolution in one hemisphere co-existing with high evolution in the other. Alcoholism on the other hand produces uniform dissolution without the phenomena due to different levels. The level of evolution also varies in different centres, and is a co-factor with the depth of lesion. Positive symptoms, as *e. g.* illusion, are evolutionary on a reduced but then highest level of a nervous system mutilated by disease. The hierarchy of the nervous system, which is throughout a sensory-motor mechanism, is threefold. 1. The lowest level consists of anterior and posterior horns of the spinal cord, Clarke's visceral

column and Stelling's nucleus, and the homologues of these parts higher up. It represents all parts of the body most nearly directly. 2. The middle level consists of Ferrier's motor region with the ganglia of the corpus striatum and of his sensory region, and represents all parts of the body doubly indirectly. 3. The highest level consists of the prae-frontal and occipital lobes, or of the highest motor and sensory centres respectively, these being the organ of mind, and evolved from the middle as the middle are from the lower and the lower from the periphery, and this re-represents the body triply indirectly. The division between the middle and highest is less decided than between the middle and lowest; and the author confesses some doubt at present as to the occipital lobes being the highest sensory centres. These three levels represent progress from homogeneity to heterogeneity, and increasing degrees of differentiation, specialization, integration, and interconnection, which are the four chief factors of organic evolution. The term "indirect" means that in going up the levels there are not insensible gradations but occasional stoppages. The pyramidal tracts, *e. g.*, connect the lower with the middle centres, and thus raise them to much higher powers. Centres are both reservoirs and resistances, and it is these latter or protective activities that make the physical basis between faint and vivid states of consciousness. Trains of thought, or internal evolution, independent of present experience, can go on. High centres are most complex, least organized, most needing to be forced into activity, but more capable of new kinds of action. Inward and upward the sensory centres are overcome in order, and finally great irradiation in the highest sensory centres occurs, and a "survival of the fittest" states. Downward there is a narrowing of the energy of liberation, as the possible is made actual. *Les grand maux* differs from *les petits maux* in that in the former the middle centres offer less resistance. The highest centres are least automatic, most imperfectly reflex, and seats of most active evolution, and universally representative of the whole organism and all its processes. It is the physical basis of the ego which is co-ordination or representation, the two latter terms being taken as equivalent. To understand the brain we must not take "a too brutally materialistic view" of the mind. Between mental and cerebral states there is perfect concomitance, not identity. Darwinism does not imply materialism, and this "two clock theory" is "convenient in the study of nervous diseases." The author does not attempt to explain mental states, but the structure of the brain, and, which is greater, what parts of the body it represents, and how to identify the two, is a metaphysical way of making short work of a hard problem. The chief use of mental symptoms for the physician is as signs of what is going on or ought to in high centres. The conception of concomitance rejects such terms as emotional or volitional centres, ideomotor physiology of mind as logical cross-divisions, and declines to say the mind influences the body, fright makes the heart beat, or that sensations, ideas, etc., produce movements. Such expressions imply disbelief in the doctrine of the conservation of energy. Movements always arise from liberation of energy in the outer world, and it would be strange if an immaterial will interfered with the activity of nervous arrangements of the highest centres. On the concomitance theory we should not say an act was not done from lack of will, an aphasic did not speak because he had lost the memory of words, or a comatose patient did not move because he was

unconscious, but should try to find materialistic explanations of physical inabilities. As to how far down in the higher nerve centres consciousness attends nervous action, whether we judge by elaborateness of action or by memory as necessary, it is impossible to tell by loss of consciousness just how far down the lesion has extended. But as evolution proceeds consciousness is raised higher, and in dissolution activities on lower levels may have attendant states of consciousness. A typical fit of epilepsy is analyzed to illustrate the author's view so far, a scheme of future work is presented, in which constant reference must be had to the evolution of higher from lower, *e. g.*, as follows: 1. Centres for simplest movements of limbs become evolved in the highest centres into the physical bases of volition. 2. Centres for simple reflex action of hands and eyes evolve into the physical bases of visual and tactile ideas. 3. Centres for tongue, palate and lips, as concerned in eating and swallowing, became bases of words as symbols of abstract reasoning. 4. Lower circulatory centres became the bases of emotions. Thus the highest evolved from the lower becomes independent of it, and is the emotional basis of mind. Three degrees of post-epileptic insanity correspond to three depths of exhaustion. Even after a very slight fit there is defect of consciousness as to present surroundings with increase of consciousness as to some earlier surroundings, thus occasioning what often seems like two different mental states. Progressive muscular atrophy, paralysis agitans, and general paralyses of the insane, are alike in being due to decay of cells in order of size from small to large, but unlike in occurring on the lowest, middle and highest levels respectively of motor evolution.

Some of the Relationships between Epilepsy and Insanity. By Dr. C. H. SAVAGE. *Brain*, January, 1887, pp. 446-56.

Under the treatment of Hughlings-Jackson, who, in his epoch-making work on epilepsy, took the first important step towards applying the philosophy of evolution as represented by Herbert Spencer to the psychology of mental diseases (cf. the remarkable way in which, before and after Griesinger, Herbartian conceptions dominated the field of morbid psychology in Germany), this disease has come to be of the utmost interest to psycho-physicists. Dr. Savage, whose little book on "*Insanity and Allied Neuroses*," gives evidence of unusual discrimination, breadth and independence, here suggests two classes of epileptics: first the neurotic, with inherited nervous instability, and second, the organic or accidental, due to definite lesions in the brain itself. He thinks "masked epilepsy" rarely occurs without being preceded by fits; of which violent, acute and repeated dreams, occurrences that cannot be accounted for, or gaps in life that cannot be quite filled by the patient, are ample evidence. He suggests that those who are epileptic by heredity may be able to bear more nervous disturbance than those of apparently good stock, and thinks that the study of chronic epileptics may be as useful to the philosopher as the weathering of the rocks to the geologist. Singular cases where epilepsy serves to restore mental balance, the outbreak of severe fits coincides with the cure of even chronic insanity, are given. It is suggested that there may also be some relation between hallucination of smell, so very common in epilepsy, and the prevalence of the same delusion in those who are insane with